

一种基于螺旋弹簧形状感知技术的六维信息输入装置设计

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摘 要：

提出一种基于捕捉圆柱螺旋弹簧变形信息的六维信息输入装置。将圆柱螺旋弹簧底端固定，操作者在圆柱螺旋弹簧的顶端施加力和力矩，使弹簧产生相应的变形，利用圆柱螺旋弹簧形状信息感知技术捕捉操作者的操作意图。介绍了圆柱螺旋弹簧形状信息感知技术的原理和弹簧簧丝表面的应变的电测电路，研制了六维信息输入装置原型系统，实验结果证明该装置设计原理正确。

关键词：六维信息;输入装置;螺旋弹簧;形状感知

Design of the Device Capturing Six-dimension Information of a Helical Spring Deformation

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Abstract:

A device capturing six-dimension information of a helical spring deformation is designed. The helical spring is fixed on the base of the device, by applying a force on the top of the spring, and then the six-dimension information of the spring's deformation is obtained by an ad hoc sensing technology. The principle of this sensing technology is described, and the circuit detecting the strain of the spring wire surface is designed. Finally, an experimental system of the device capturing six-dimension information is developed, and the experimental result verifies the feasibility of this method.

Keywords: six-dimension information; information input device; helical spring; deformation sensing

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